

Central Valley Monitoring Directory
Feasibility Study
November 2011
Aquatic Science Center

Goal

The overall goal in developing a web-based Central Valley Monitoring Directory was to provide a tool that documents current and planned surface water quality monitoring occurring in the Central Valley in order to facilitate more coordinated activities and better leverage shrinking resources.

Key Components Initially Identified

There has long been concern expressed over duplication of monitoring efforts by various state, federal and local entities. Inherent in the concern was the premise that if the efforts were better coordinated, not only would there be cost savings but information gathered would be able to support multiple efforts while providing a better picture of overall health of California water bodies. Previous efforts to document monitoring were typically time consuming and out-of-date by the time the information was complete. The concept of a web-based monitoring directory that would document current activities and provide user friendly access and updating capabilities was established. Some of the initial desired capabilities included:

- ✓ Map current sites by basin/watershed;
- ✓ Sort by organization, program and/or analyte;
- ✓ Provide summary tables of sorted information;
- ✓ Document monitoring programs, available QAPPs, and contact information; and
- ✓ Link to electronic data residing elsewhere, as available.

The directory was never intended to actually hold the analytical results from monitoring activities. Instead, the directory was to contain information on the site, analytes, frequency, and purpose of each program and was to be:

- ✓ Stakeholder Driven
 - For example, stakeholders enter monitoring program data via the web.
- ✓ Self Maintaining
 - Record planned time period of monitoring effort;
 - Email expiration notice to individual monitoring program managers prior to expiration date;
 - On expiration, the program's information will be archived if that program's manager does not amend the monitoring end date.

In other words, the directory would provide information on current and planned activities so that coordination opportunities could be identified.

Initial Funding

Original seed money was provided by the USEPA for a pilot study in the San Joaquin River Basin (\$20,000) as part of an overall effort to develop the framework for a regional monitoring program within the basin. In November 2007, a stakeholder meeting was held to discuss the regional monitoring program concept during which the pilot directory was introduced. The stakeholders strongly supported pursuing the web-based directory concept.

At the end of the pilot project, the Central Valley Regional Water Quality Control Board Surface Water Ambient Monitoring Program (CV Water Board SWAMP) expanded the effort to the entire Central Valley and beta tested a new prototype in the Sacramento-San Joaquin Delta (\$50,000). This prototype provided the basis for the Delta Regional Monitoring Program's report of current monitoring activities¹. The CV Waterboard SWAMP continued to fund display and data entry improvements (\$50,000) and committed to providing maintenance of the directory for three years at \$15,000/yr (through March 2012).

The long-term goal is to provide a robust tool that multiple users would be willing to update and maintain—both through personal use and through cost-sharing structural and network expenses.

Status of the Project

Since August 2010, the Directory has provided:

- Water monitoring information for California's Central Valley, organized into *programs* containing one or more *monitoring plans*, which in turn contain *sites* and *measured analytes*.
- About 30 monitoring programs, 250 monitoring plans, and over 1000 sites are currently available.
- Display of monitoring sites on an interactive map, subset by basin, alongside summarized monitoring information arranged by program, organization, or analyte group.
- Program and plan information pages.
- A data entry interface where authorized users can add or edit information using their web browser.

In addition to acting as a comprehensive general reference for the Central Valley water monitoring community, the Directory allows monitoring program managers to easily discover related monitoring efforts being conducted in the same area, which may represent opportunities for collaboration and cost-sharing.

¹http://www.waterboards.ca.gov/centralvalley/water_issues/delta_water_quality/comprehensive_monitoring_program/draftfinal_deltamon_25nov09.pdf

The directory is a complex product, and the last year has been spent testing, identifying and resolving errors, and adding features to increase usability. The Aquatic Science Center (ASC) has worked closely with CV Waterboard staff throughout this process. As of this writing, all significant data entry and display errors have been found and corrected (though more may be found), and the directory is ready for general use.

Since August 2010, CV Waterboard staff have held several workshops to introduce the Directory to stakeholder audiences. A survey was added to the Directory home page to collect feedback from workshop attendees and others who have previewed the Directory. About a dozen responses have been collected to date—from state agencies (Department of Water Resources and Department of Pesticide Regulation), local watershed groups, consultants and others. Results received to date are summarized in Appendix A. Most of the reviews and comments were positive with specific recommendations for improvement. However, two of the consultants found the system to be too slow, complicated and unresponsive to their specific search criteria. Unfortunately, the negative comments came through the electronic survey and the respondents did not leave contact information to enable follow-up on the specific searches being attempted. It is possible that some of the issues (e.g. map loading time) have been resolved since the surveys were submitted.

Maintenance work with current funding

As of November 2011, the Directory had approximately \$8000 available for further development, maintenance, and support (Tasks 2 & 3 of existing contract which ends March 2012).

In addition to new or enhanced feature implementation, the available funds must cover maintenance and support of the Directory through March 2012.

- ASC's yearly maintenance and support estimate: **\$10,000-15,000**

ASC's yearly estimate for maintenance assumes the entry and editing of monitoring information will be performed almost entirely by local stakeholders with support from CV Waterboard staff and their partners. Maintenance and support performed by ASC includes phone and email support, server backup and monitoring, resolution of additional programming issues discovered, and minor but high-priority feature modifications identified through continued use of the Directory.

Using ASC's yearly estimate for the maintenance and support budget, about \$3500 of the remaining contract funds has been allocated to cover this work through March 2012. This leaves approximately \$4500 for the implementation of several identified features.

Additional feature work with current funding

During the course of development and testing, potential feature additions or changes have been identified by ASC, CV Waterboard and Directory previewers. These have been compiled into a spreadsheet for prioritization and cost estimates (Appendix B). CV

General Category	Item	Priority (3=High, 2=Med, 1=Low)					Funded	Cost (\$)	Estimated Timeline
		CVRWQCB (Region5)	DWR	DPR	Watershed/ Citizen Groups	Consultants			
Data Exports	Review and add fields from the existing database to export tables as necessary	3					√	1349	March 2012
	Provide a formatted (pdf format) report option along with Excel downloads	3			3			2498	
	Put the download date in the Excel file name	3						128	
	Provide "mapped sites only" downloads	3			3		3	1149	
Program/ Monitoring Plan Webpages	Show analyte start/end dates	3					√	191	March 2012
	Concatenate all "Lead" organizations for Monitoring Plan pages	3						637	
	Deleting Data Products out of Program pages and leaving only in Monitoring Plan pages	2						128	
	Show active and inactive analytes	2						575	
	Move search (filter) boxes on Program and Plan pages to top of table	1						191	
	Page title enhancement (url name)	1						191	
Selected Development Issues	Browser compatibility	3						NA	
	Basin, subbasin, and watershed boundaries	3						NA	

Subtotals for the different prioritized feature groups are as follows (refer to Appendix B for the full list of feature work items and detailed comments):

All listed features: **\$59,100²**

All funded CV Waterboard top-priority items **\$4500**

All items rated top-priority by any user group including CV Waterboard: **\$39,500**

These figures are based on ASC developer team estimates, which rely on feature descriptions and past feature development experience, on the Directory and on similar projects. The Directory developer team has remained consistent over the last 3 years and draws on its experience developing the product.

Available funds will cover several key CV Waterboard top-priority items, and ASC anticipates that these will be completed by the end of March 2012. Remaining funds, if any, can be used to implement other items rated top-priority by the CV Waterboard.

² Rounded to the nearest \$100. Some features in this group are substantial enough (e.g. data import) that a more detailed specification is required for an accurate estimate. A rough estimate is provided.

Priority feature work with additional funding

If additional funding is secured, ASC endorses tiered implementation based on the priorities compiled by CV Waterboard. The prioritized feature list should be updated as additional experience by ASC, CV Waterboard and other stakeholder groups brings additional perspective and ideas for improvement. This way, each additional round of funding can be informed by the latest estimates of cost and priority.

An important goal for the Directory that is not addressed in the prioritized feature list is expansion across all regions of California. ASC can provide on request an estimate for map programming and increased support and maintenance necessary for a full-state rollout of the Directory.

Selected development issues

Two development issues are highlighted here because they have potentially wide-ranging impact on Directory function, particularly as the geographic scope and user community of the Directory expands throughout the state.

Browser compatibility

Modern browsers (Internet Explorer 8+, Firefox 3+, Safari 4+) have evolved in concert, and most websites viewed with these browsers appear and behave consistently. Older browsers, specifically Internet Explorer 7 (released in 2006), when used to view sites that make use of modern web technologies such as the Central Valley Monitoring Directory, can present display inconsistencies that require dedicated development effort to resolve. In addition, the time required to initially display Directory pages, in particular map pages, is heavily influenced by the browser in use, with older browsers being up to several times slower. To the extent it is possible for agencies and other user groups to move to either Internet Explorer 8 or 9, or ideally, Firefox 3 or 4, costs will be conserved and the user experience will be improved. The current cost estimates do include time for resolving major Internet Explorer 7 display issues, but more money could be directed to additional feature development if such resolution is not required.

Basin, subbasin, and watershed boundaries

An important way for the user to filter the available monitoring information and focus on a region of interest is through the initial selection of basin and sub-basin. The following basins, sub-basins, and watersheds are currently used in the Directory:

Basins	Sub-basins	Watersheds
Delta	North Delta South Delta	Sacramento Delta, San Joaquin Delta
Sacramento River	none	Tehama, Mc Cloud River, Shasta Dam, Whitmore, Redding, Eastern Tehama, Valley Putah-Cache, Putah Creek, Cache Creek, American River, Marysville, Bear River, Yuba River, Feather River, Valley-American, Colusa Basin, Butte Creek, Stony Creek, Ball Mountain, Shasta Bally, Upper Sacramento, Pit River, Lakeview, Upper Elmira, Cortina, Mountain Gate
San Joaquin River	Northeast Eastside Grasslands Southeast Lower San Joaquin River Westside	Tuolumne River, Merced River, Stanislaus River, San Joaquin Valley Floor, Delta-Mendota Canal, Delta-Mendota Canal, San Joaquin Valley Floor, Gopher Ridge, Lower Calaveras, North Valley Floor, Middle Sierra, Upper Calaveras, Carbona, North Diablo Range, San Joaquin Valley Floor, Mariposa, Ahwahnee, San Joaquin River, Delta-Mendota Canal, Middle West Side
Tulare Lake	none	South Valley Floor, Kings River, Kaweah River, Kern River, Southern Sierra, Grapevine, South Valley Floor, South Valley Floor, Coast Range, Fellows, Temblor, Sunflower Valley

Watersheds are based on CalWater 2.2 Hydrologic Units, and sub-basins were developed for regional needs and are not part of a state-wide standard watershed scheme. Currently, map and summary data can be filtered by choosing a basin and (when available) a sub-basin on the main Inventory page. Watersheds may become a basis for filtering in the future.

Use of the Directory is impeded by inconsistent availability and definition of sub-basins and basins. A more consistent definition of these geographic boundaries will increase the usefulness of the current Directory, as well as prepare it for eventual state-wide use. The Monitoring Council would be an appropriate entity to lead the identification of suitable watershed boundaries that will be utilized by multiple state, federal, and local agencies and other stakeholders.

Appendix A

Online and Meeting Feedback on Directory Improvements

The following table is a compilation of user feedback from online and meeting surveys regarding possible improvements to the Directory. These responses were used to establish the priorities for additional feature development shown in appendix B.

Organization	Source						Comments	Contact
		Provide more data selection options	Improve general website navigation	Improve mapping features	Improve data entry features	Improve print or excel download		
DWR	Survey 201012020130	2	3	3	1	2	This is a really handy tool. Would like to see more information on biological data - could fish monitoring be included? Is it possible to sort the map by data type? I would like to do something like show all benthic macroinvertebrate monitoring sites. This is great! thanks.	gbenigno@water.ca.gov
	Overall feedback during In-house meeting	2	2	3	2	2	Mapping issues were of a higher priority: security for sites that need to be hidden, polygon shapes for sites that move, ability to see layered sites more easily. Also, data entry needs to be easy - more bulk entry options would help	
	Total	2	2.5	3	1.5	2		
DPR	Survey 201012100400	3	1		2	2	Would like to see a security flag that would allow my project to be visible yet would allow me to hide my exact sample collection site for sites with auto-samplers. Flag that could be unchecked once all sampling was complete. Also, the ability to see historical sample collection locations/organizations.	kkelley@cdpr.ca.gov
	Overall feedback during In-house meeting	3	2	3	3	2	Mapping issues were of a higher priority: security for sites that need to be hidden. Also, data entry needs to be easy - more bulk entry options would help	
	Total	3	1.5	3	2.5	2		
Watershed/ Citizen's group	Survey 201010010852	2	3	3	2	3		maureen@westernshastarcd.org
	Survey 201011220401	3	3	2	3	3	For the Sacramento Area Creeks Council, we need to know what is known about the safety of our urban creeks for human contact recreation, because each year we send out volunteers to clean up litter and we don't want to sent people where the water is unsafe for them to enter.	wetemplin@att.net
	Survey 201011251005	2	2	2	2	2		
	Survey 201012020131						I like that I can map all the sites for a certain parameter, but would like to be able to download the information for just those sites and parameters - not the whole list of sites in the basin.	
	Survey 201101301446						Omission of the santa cruz jurisdiction for coastal to ocean waterways (just like the delta to the bay to the ocean) is being promoted. Please FIX it. Abandonment of areas and is assisting free enterprise and not the GENERAL PUBLIC and our local environment	nanidrew@comcast.net
	Total	2.33	2.67	2.33	2.33	2.67		
Consultant	Survey 201011221257						Not currently user friendly. I was trying to find stormwater runoff data for MS4s and it didn't seem findable - a "how to" directory might be useful.	
	Survey 201011220121						The site was so slow and difficult to load that it is useless. The interface needs significant streamlining. FYI, I'm using Firefox 3.6 on a DSL line; usually is snappy fast!	
Other	Survey 201011151225	2	3	3	2	2		
	Survey 201011221250	2	2	1	1	2	Allow to select monitoring parameter and just show those sites on the map - e.g., click on bioassessment and only see the locations with those data available.	bstanton@ospr.dfg.ca.gov
	Survey 201011230830	2	1	3	2	1	I use the information to 'spatially augment' my data to determine large scale trends and ambient conditions in order to be better able to determine earlier if a slight increase in my turbidity samples are an early warning of a BMP problem.	david_troop@dot.ca.gov
	Total	3	2	2	3	1		
	Total	2.25	2	2.25	2.00	1.50		

Appendix B

Detailed List of Prioritized Feature Additions and Improvements

Feedback on feature priorities was generally collected at the category level. In some cases stakeholders also provided more specific feedback on particular line items.

Feasibility Study—2011 Directory Features Score Rating: 1= Low 2 = Medium 3 = High

Item	General Category	Work item	Comments	CVRWQCB	DWR	DPR	Watershed/ Citizen Grps	Consultants	Other	Score 3 if any one of the groups gave the item a high priority	Cost estimate (\$)	Planned for completion by March 2012
	Data Filters/ Selection Options	Overall Category score based on surveys and meetings		3	2	3	2.3		2			
1		Select by Date Range (e.g. by calendar year) to view data on map and on Info pages. Default is current year.	Considerations must be made to status fields and how they are used or filtered, along with date fields. Maybe change status fields to "Planned/Proposed, Currently Active, Completed/Terminated". Startdate fields should be required. Enddate fields can remain empty only if the program is ongoing. Need a year widget on both map and info page interfaces	3	3	3				3	1,093.00	yes
2		Select by County. Single county selection only. Appears on both Map and Info pages.	Would require creation & population of an additional field in the dbo_tblCVSiteInfo table for County	2			3			3	646.50	
3		Select by Sub-basin in Sacramento and Tulare Basins (once layer is available)	Would need to consider which layer to use. Currently, there does not seem to be a standard agreement between various agencies and groups on how to define the boundaries. Estimate assumes a sub-basin boundary layer is provided to SFEI.	3						3	512.00	
4		Select or sort by Primary Monitoring Objective (see new field in Data Entry section below).	Implement by adding an Objective column to the Programs tab, allowing sorting.	3						3	609.00	
5		Provide a text site search feature on map	The sites tab does not have an intuitive order to it, so it is not easy to find a site. Implement by providing text search field that will filter Sites list based on matches in any displayed text (Name, Lat-long, Code...) Note: An approximation of this functionality is already available, by using the browser's page search.	2					3	3	893.00	
6		Show summary table information when "ALL" basins are selected	Implementation: When All basins are selected, provide within each map tab a simple report on numbers of Programs, etc. See mockup.	2							865.00	
	General Website Navigation	Overall Category score based on surveys and meetings		3	3	1.5	2.7		2			
7		In the Programs and Agencies tabs, show the long display name of organizations with mouse roll-over	Implement by wrapping displayed name in span tag, loading long name into "title" attribute.	1							256.00	
8		Freeze column headers and first few columns in the summary tables in Programs and Agencies tabs when scrolling down or across	Freeze first 3 columns in Programs and Agencies tab	2							830.50	
9		Provide a pop-up window to describe what	Add "list" link to map tab "Priority pollutants"	3						3	178.00	

Item	General Category	Work item	Comments	CVRWQCB	DWR	DPR	Watershed/ Citizen Grps	Consultants	Other	Score 3 if any one of the groups gave the item a high priority	Cost estimate (\$)	Planned for completion by March 2012
		is in the "Priority Pollutants" category	column header and to analytes list in Info pages This should also be in the Data Entry screens									
10		Improve the Sites tab - show monitoring start/end dates for each analyte, show overall start/end dates for the site, determine a sort for the sites	Site monitoring start date is the earliest analyte start date for that site; similar for site end date. Sort will be alphabetical by site name Layout of sites tab listing to be modified to more clearly convey that sites are being listed.	3					3	3	634.00	yes
11		Overall look and feel improvements	Taking advantage of new web design talent at SFEI						3	3	2,200.00	
	Mapping	Overall Category score based on surveys and meetings		3	3	3	2.3		2.33			
12		Reset the map to its original magnification between summary tabs	There are many use-cases where a map reset will be disruptive to the user experience, e.g. if the user is investigating a particular area. Instead, suggest restricting map scale to no smaller than full-CA view (no more zooming to the world) so on click on end of zoom slider can reset view if desired.	2							318.50	
13		Restrict zoom scale to no smaller than initial scale (just showing entire state)		3						3	128.00	
14		Reset the map to its original magnification when changing basins	Map will reset if no sites would be visible after switch.	2							637.00	
15		Easier identification of mapped and unmapped sites in the Sites tab when a selection is made with the magnifying glass	Only mapped sites are displayed in the Sites tab after use of the magnifying glass	2								
16		Provide a print map button	Print button will view just map pane in a new window, bring up print dialog	3						3	318.50	
17		Program Info Page map zooming	Map on Info page should not change scale when clicking pins, or when clicking "Map" in Sites table. Should only pan. Map also should not zoom out past full-CA view.	2							190.50	
18		Consistent listing and display of sites between map, summary tabs as well as downloads	The display and selection of sites should be consistent between tabs and with data downloads	3						3	1,274.00	yes
19		Consider options for sites that are not specific spots on the map, but instead may be a polygon area (for example, DWR may have a single site that represents an area on the map that they rotate or move through over time)	Another example would be someone who is planning to study a certain area but does not yet know exactly where the sampling spot is going to be, or plans to do adaptive monitoring based on initial results We can modify our wetland permit mapper to allow the drawing of areas on the map.	2	3					3	12,680.00	
20		Consider options for "secured" sites	There are times when programs do not want to provide exact monitoring locations due to security issues (vandalism of equipment). How can we provide their information without having a site on the map? Possible implementation options: - Create site security field; security level would randomize pin display (say with 0.5 mi radius); lat-	1	3	3				3	1,886.00	

Item	General Category	Work item	Comments	CVRWQCB	DWR	DPR	Watershed/ Citizen Grps	Consultants	Other	Score 3 if any one of the groups gave the item a high priority	Cost estimate (\$)	Planned for completion by March 2012
			long would not display at all in public interface - Allow completely unmapped sites Estimate is for first option									
21		Explore using different site symbols on the map to distinguish between programs	Instead of using the standard teardrop shape There are over 20 different active programs, too many for symbology in general. Suggest a hover box that will bring up Program name (estimate); also, an on-demand special color for a selected program should also be possible.	3						3	381.00	
	Data Entry	Overall Category score based on surveys and meetings		3	2	2.5	2.3		1.67			
22		Provide an import data option	Implementation: User would complete an Excel template that has some built-in validation. Template would contain sheets for Program, Plan, Site, analyte, Data Product. User would upload file to site, receive basic success/failure feedback. All data would be new data added to site.	2							10,280.00	
23		Provide a standardized (using a pull-down menu) " Primary Monitoring Objectives " field for monitoring plans/programs. A single primary objective will be allowed per program and plan. List of primary objectives to be provided to SFEI. Field will be displayed on Program/Plan info pages, and as new column in Programs tab of map. Field will be populated for each Program/Plan by Region 5 staff.	This should also be in the analytes Tab. The analytes tab is cross-program and cross-plan, so how can Objectives be included there? Should this field be restricted to Plans or Programs only? Will there be umbrella Objectives for Programs that capture the varying Objectives for all the Plans within?	3						3	737.00	
24		Provide a pop-up window to describe what is in the "Priority Pollutants" category	Provide "definitions" link on analytes data entry page.	3						3	381.00	
25		Add a "copy from existing monitoring plan" feature	If we are going to effectively archive information, we will need to close out monitoring plans and add new entries for new ones. For example, when a NPDES permit is renewed, it has a new monitoring plan. We will need to inactivate, not modify, the old plan and open a new one. Much of the monitoring information may be the same, so it would be nice to be able to copy a monitoring plan and make edits as needed. Add "Copy" button or column to Monitoring Plans listing. Copy will include all attributes, sites, and analytes of existing plan.	3						3	2,173.00	

Item	General Category	Work item	Comments	CVRWQCB	DWR	DPR	Watershed/ Citizen Grps	Consultants	Other	Score 3 if any one of the groups gave the item a high priority	Cost estimate (\$)	Planned for completion by March 2012
26		Streamline the "Choose from existing sites" button and add a search for existing site option	The window that opens contains a lot of information that is hard to navigate through. Consider ways to shorten the list or make it easier to search. For example, maybe a user could click on the Google Map and a selection of sites only in that area would appear. Implement by adding as-you-type row filter for "choose from existing" sites table.	2							1,342.50	
27		Limit the site code entry field (when entering a new site) to the database limit of 10		3						3	128.00	
28		Autopopulate the lat/long entry fields when a site is clicked on the map	Currently it shows in a yellow box - but disappears before a user can copy it into the entry fields. Will make the yellow box persist longer.	3						3	128.00	
29		Change default column order for monitoring plan list in data entry to Status first and then Monitoring Plan Name (that way Active plans are listed first). Keep the option to sort each column.	Will do same for Programs list.	2							256.00	
30		Deletions needed for contacts/data products		3						3	637.00	
31		Deletions for analyte and monitoring plans	This was not included currently because of the desire to archive information for future queries by date and no clear procedure on how this should be done. However, with a prompt telling the user that the information will be permanently deleted and will not be archived, we should add deletion control for everything in the data entry portal for users that make incorrect entries. Deletion confirmation will note how many sites and analytes will be deleted along with the Plan.	2							637.00	
32		Autopopulate EncryptedPassword in tblLogin									356.00	
33		Enhancement to bulk analyte editing	The "ADD" feature is not currently working. Activate ADD.	3						3	1,149.00	
34		Enhancements to analyte-site assignment viewing	Add a site/analyte group matrix that will indicate which sites in a plan are being monitored for which analyte groups.	3						3	1,661.00	
35		Add as-you-type filtering to data entry tables	For all data entry tables.	2							893.00	
36		Analyte list import during definition of analyte list	Option on analytes data entry tab to copy analytes from existing site in the same Program. Will copy all analytes, frequencies, analyte detail and frequency detail.								1,661.00	
37		Save changes prompt after data entry	If unsaved changes exist when user tries to leave page.	3						3	637.00	

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38		A Program should only have one lead organization - currently if you have 2 or more organizations assigned to a program, the "Lead" checkbox can be checked multiple times	Program lead should be a radio button, not a checkbox. Plan, however, can have multiple leads and checkboxes should remain.	3						3	384.00	
39		Make at least one contact required for each monitoring plan	The save monitoring plan currently needs to be done before going to the other tabs. Maybe a prompt could come up when the "Save monitoring plan" button is used and there is no contact, telling the user to enter a contact. User may click Save many times before getting to the Contacts tab. Cannot use a modal prompt. Will put up a growl (non-modal) notice "please enter a contact" when the user clicks Save Not a hard requirement.	2		3				3	381.00	
40		Need description/comments field for Programs and Plans	There is often additional information the end use needs to convey; don't want them using the Monitoring Objectives for more general descriptive text, or have them feel the interface is too limiting. Option: just rename the Monitoring Objectives "Monitoring Objectives/Description."	3						3	318.50	
41		Add item counts to tab names	Instead of "Sites, Data Products, Contacts" use "Sites (12), Data Products (2), Contacts (3)"	3						3	1,405.00	
	Data Exports	Overall Category score based on surveys and meetings		3	2	2	2.7		1.67			
42		Provide a formatted (pdf format) report option along with excel downloads (<i>see report spec on next worksheet</i>)	The content indicated in the spec really lends itself to an Excel file export, rather than PDF. Is a PDF conversion of an Excel-based layout desired, or something else? Estimate is for a PDF conversion.	3			3			3	2,498.00	
43		Review and add fields from the existing database to export tables as necessary (example, relevant note and date fields)	For example, a user now has no ability to see the notes for an analyte that is sampled as "Other".	3						3	1,349.00	yes
44		Put download date in the Excel file name	The date is in the filename, but it is part of a long number string, so it is not easily distinguished.	3						3	128.00	
45		Provide "mapped sites only" downloads (for example, if only one analyte is selected and mapped, the user could choose to just download that specific information and not the entire dataset)	If only selected sites are mapped, either via use of the magnifying glass tool, or the unmap/map links, only information for those sites will be provided. If selected sites are mapped by use of unmap/map in the parameters tab, only analyte information for the mapped sites will be exported.	3			3		3	3	1,149.00	
46	Program/MP Info pages	Concatenate all "Lead" organizations for Monitoring Plan pages (only shows first record currently). Note - Programs can only have 1 lead, but MPs can have >1 leads. Some plans (like NPDES permits) may have multiple leads.		3						3	637.00	

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47		Since "Data Products" are monitoring plan specific, does it make sense to summarize them on the Program page without any reference to which plan they belong to? Maybe just delete this section out of the Program page and keep on the MP page?	Implement by deleting Data Products from Program Info page, leave on Plan page.	2							128.00	
48		Move search (filter) boxes on Program and Plan info page tables from bottom of table to top, to eliminate current jumpy behavior. Currently, text entry box can jump out of viewport.		1							190.50	
49		Page title enhancement (url name)	Page title is too generic right now - makes for less useful bookmarks and browser histories	1							190.50	
50		Show active and inactive analytes	Given current summarized display of analytes on Program/Plan info pages, implement by adding a separate "inactive analytes" table.	2							574.50	
51		Show analyte start/end dates	Given current summarized display of analytes on Program/Plan info pages, cannot add a start/end column to the analytes table. Will implement by adding start/end dates in [brackets] to analytes when revealed by clicking on Site name in Sites table.	3						3	190.50	yes

Summary Totals	High Priority Items	All Items	Funded Items
TOTAL Amounts	39,504.00	\$59,110.50	\$ 4,541
Nov 1 remaining balance Task 002			\$ (6,480)
Nov 1 remaining balance Task 003			\$ 14,547
Final balance (to be used for maintenance and support)			\$ 3,527